

## SEQUENCE LISTING

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 KULOMAA, MARKKU SAKARI

<120> AVIDIN MUTANTS

<130> 3502-1105

<140> 10/579,393

<141> 2006-05-15

<150> PCT/FI04/000679

<151> 2004-11-15

<150> FI 20031663

<151> 2003-11-14

<160> 33

<170> PatentIn Ver. 3.3

<210> 1

<211> 152

<212> PRT

<213> Gallus gallus

<400> 1

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Ala	Leu	Val	Ala	Pro	Gly	Leu	Ser	Ala	Arg	Lys	Cys	Ser	Leu	Thr	Gly
			20					25					30		

Lys	Trp	Thr	Asn	Asp	Leu	Gly	Ser	Asn	Met	Thr	Ile	Gly	Ala	Val	Asn
		35					40					45			

Ser	Arg	Gly	Glu	Phe	Thr	Gly	Thr	Tyr	Ile	Thr	Ala	Val	Thr	Ala	Thr
	50					55					60				

Ser	Asn	Glu	Ile	Lys	Glu	Ser	Pro	Leu	His	Gly	Thr	Gln	Asn	Thr	Ile
65					70					75					80

Asn	Lys	Arg	Thr	Gln	Pro	Thr	Phe	Gly	Phe	Thr	Val	Asn	Trp	Lys	Phe
				85					90					95	

Ser	Glu	Ser	Thr	Thr	Val	Phe	Thr	Gly	Gln	Cys	Phe	Ile	Asp	Arg	Asn
			100					105					110		

Gly	Lys	Glu	Val	Leu	Lys	Thr	Met	Trp	Leu	Leu	Arg	Ser	Ser	Val	Asn
		115					120					125			

Asp	Ile	Gly	Asp	Asp	Trp	Lys	Ala	Thr	Arg	Val	Gly	Ile	Asn	Ile	Phe
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<210> 2

<211> 298

<212> PRT

<213> Gallus gallus

<400> 2

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Phe Gly Phe Thr Val Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe  
35 40 45

Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr  
50 55 60

Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys  
65 70 75 80

Ala Thr Arg Val Gly Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys  
85 90 95

Glu Gly Gly Ser Gly Gly Ser Ala Arg Lys Cys Ser Leu Thr Gly Lys  
100 105 110

Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile Gly Ala Val Asn Ser  
115 120 125

Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr Ser  
130 135 140

Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile Asn  
145 150 155 160

Lys Ser Gly Gly Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp  
165 170 175

Arg Asn Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser  
180 185 190

Val Asn Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn  
195 200 205

Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu Gly Gly Ser Gly Gly Ser  
210 215 220

Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser  
225 230 235 240

Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr  
245 250 255

Tyr Ile Thr Ala Val Thr Ala Thr Ser Asn Glu Ile Lys Glu Ser Pro  
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Leu His Gly Thr Gln Asn Thr Ile Asn Lys Arg Thr Gln Pro Thr Phe  
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Gly Phe Thr Val Asn Trp Lys Phe Ser Glu  
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<210> 3  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
           peptide linker

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<220>  
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31

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           primer

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<220>  
 <223> Description of Artificial Sequence: Synthetic  
           primer

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<210> 7  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

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<210> 8  
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<210> 11  
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<210> 12  
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<212> DNA  
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<223> Description of Artificial Sequence: Synthetic  
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<210> 13  
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primer

<400> 13  
ccggcggatc caccactgtc ttcacgggc

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<210> 14  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

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<210> 15  
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<220>  
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<210> 20  
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<220>  
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29

<210> 21  
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<220>  
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<220>  
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<400> 22  
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<210> 23  
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<210> 24  
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 <213> Gallus gallus

&lt;400&gt; 24

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Ala	Leu	Val	Ala	Pro	Gly	Leu	Ser	Ala	Arg	Lys	Arg	Thr	Gln	Pro	Thr	20	25	30	
Phe	Gly	Phe	Thr	Val	Asn	Trp	Lys	Phe	Ser	Glu	Ser	Thr	Thr	Val	Phe	35	40	45	
Thr	Gly	Gln	Cys	Phe	Ile	Asp	Arg	Asn	Gly	Lys	Glu	Val	Leu	Lys	Thr	50	55	60	
Met	Trp	Leu	Leu	Arg	Ser	Ser	Val	Asn	Asp	Ile	Gly	Asp	Asp	Trp	Lys	65	70	75	80
Ala	Thr	Arg	Val	Gly	Ile	Asn	Ile	Phe	Thr	Arg	Leu	Arg	Thr	Gln	Lys	85	90	95	
Glu	Gly	Gly	Ser	Gly	Gly	Ser	Ala	Arg	Lys	Cys	Ser	Leu	Thr	Gly	Lys	100	105	110	
Trp	Thr	Asn	Asp	Leu	Gly	Ser	Asn	Met	Thr	Ile	Gly	Ala	Val	Asn	Ser	115	120	125	
Arg	Gly	Glu	Phe	Thr	Gly	Thr	Tyr	Ile	Thr	Ala	Val	Thr	Ala	Thr	Ser	130	135	140	
Asn	Glu	Ile	Lys	Glu	Ser	Pro	Leu	His	Gly	Thr	Gln	Asn	Thr	Ile	Asn	145	150	155	160
Lys	Ser	Gly	Gly	Ser	Thr	Thr	Val	Phe	Thr	Gly	Gln	Cys	Phe	Ile	Asp	165	170	175	
Arg	Asn	Gly	Lys	Glu	Val	Leu	Lys	Thr	Met	Trp	Leu	Leu	Arg	Ser	Ser	180	185	190	
Val	Asn	Asp	Ile	Gly	Asp	Asp	Trp	Lys	Ala	Thr	Arg	Val	Gly	Ile	Asn	195	200	205	
Ile	Phe	Thr	Arg	Leu	Arg	Thr	Gln	Lys	Glu	Gly	Gly	Ser	Gly	Gly	Ser	210	215	220	
Ala	Arg	Lys	Cys	Ser	Leu	Thr	Gly	Lys	Trp	Thr	Asn	Asp	Leu	Gly	Ser	225	230	235	240
Asn	Met	Thr	Ile	Gly	Ala	Val	Asn	Ser	Arg	Gly	Glu	Phe	Thr	Gly	Thr	245	250	255	
Tyr	Ile	Thr	Ala	Val	Thr	Ala	Thr	Ser	Asn	Glu	Ile	Lys	Glu	Ser	Pro	260	265	270	
Leu	His	Gly	Thr	Gln	Asn	Thr	Ile	Asn	Lys	Arg	Thr	Gln	Pro	Thr	Phe	275	280	285	
Gly	Phe	Thr	Val	Asn	Trp	Lys	Phe	Ser	Glu	Gly	Gly	Ser	Gly	Ser	Gly	290	295	300	



Ser Gly Ser Gly Ser Gly Arg Thr Gln Pro Thr Phe Gly Phe Thr Val  
 305 310 315 320  
 Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe Thr Gly Gln Cys Phe  
 325 330 335  
 Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg  
 340 345 350  
 Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly  
 355 360 365  
 Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu Gly Gly Ser Gly  
 370 375 380  
 Gly Ser Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu  
 385 390 395 400  
 Gly Ser Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu Phe Thr  
 405 410 415  
 Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr Ser Asn Glu Ile Lys Glu  
 420 425 430  
 Ser Pro Leu His Gly Thr Gln Asn Thr Ile Asn Lys Ser Gly Gly Ser  
 435 440 445  
 Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu  
 450 455 460  
 Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Gly  
 465 470 475 480  
 Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn Ile Phe Thr Arg Leu  
 485 490 495  
 Arg Thr Gln Lys Glu Gly Gly Ser Gly Gly Ser Ala Arg Lys Cys Ser  
 500 505 510  
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 515 520 525  
 Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val  
 530 535 540  
 Thr Ala Thr Ser Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln  
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 Trp Lys Phe Ser Glu  
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<210> 25  
 <211> 1746  
 <212> DNA  
 <213> *Gallus gallus*

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 ttttcagagt ccaccactgt cttcacgggc cagtgttca tagacaggaa tgggaaggag 180  
 gtccctgaaga ccatgtggct gctgcggtca agtggttaatg acattggtga tgactggaaa 240  
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 ggaggctccg ccagaaagtg ctgctgact gggaaatgga ccaacgatct gggctccaac 360  
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 acagccacat caaatgagat caaagagtca ccactgcatg ggacacaaaa caccatcaac 480  
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 gaggtcctga agaccatgtg gctgctgcgg tcaagtgtta atgacattgg tgatgactgg 600  
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 tccggagggt ccgccagaaa gtgctcgctg actgggaaat ggaccaacga tctgggctcc 720  
 aacatgacca tcggggctgt gaacagcaga ggtgaattca caggcaccta catcacagcc 780  
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 aacaagagga cccagcccac ctttggcttc accgtcaatt ggaagttttc agaggggagt 900  
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 acagccgtaa cagccacatc aaatgagatc aaagagtac cactgcatgg gacacaaaaac 1320  
 accatcaaca agtcgggcg atccaccact gtcttcacgg gccagtgtt catagacagg 1380  
 aattggaagg aggtcctgaa gaccatgtgg ctgctgcgg caagtgttaa tgacattggt 1440  
 gatgactgga aagctaccag ggtcggcatc aacatcttca ctgcctgcg cacacagaag 1500  
 gagggagggt ccggaggctc cgccagaaaag tgctcgctga ctgggaaatg gaccaacgat 1560  
 ctgggctcca acatgaccat cggggctgtg aacagcagag gtgaattcac aggcacctac 1620  
 atcacagccg taacagccac atcaaatgag atcaaagagt caccactgca tgggacacaa 1680  
 aacaccatca acaagaggac ccagcccacc tttggcttca ccgtcaattg gaagttttca 1740  
 gagtga 1746

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 <211> 897  
 <212> DNA  
 <213> *Gallus gallus*

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 ttttcagagt ccaccactgt cttcacgggc cagtgttca tagacaggaa tgggaaggag 180  
 gtccctgaaga ccatgtggct gctgcggtca agtggttaatg acattggtga tgactggaaa 240  
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 ggaggctccg ccagaaagtg ctgctgact gggaaatgga ccaacgatct gggctccaac 360  
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 aaagctacca gggctcggcat caacatcttc actcgctgc gcacacagaa ggaggaggc 660  
 tccggagggt ccgccagaaa gtgctcgctg actgggaaat ggaccaacga tctgggctcc 720  
 aacatgacca tcggggctgt gaacagcaga ggtgaattca caggcaccta catcacagcc 780  
 gtaacagcca catcaaatga gatcaaagag tcaccactgc atgggacaca aaacaccatc 840

aacaagagga cccagccac ctttggttc accgtcaatt ggaagttttc agagtga 897

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<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

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<210> 28

<211> 290

<212> PRT

<213> Gallus gallus

<400> 28

Met	Asn	Lys	Pro	Ser	Lys	Phe	Ala	Leu	Pro	Leu	Ala	Phe	Ala	Ala	Val	
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Thr	Ala	Ser	Gly	Val	Ala	Ser	Ala	Gly	Thr	Gln	Pro	Thr	Phe	Gly	Phe	
			20					25					30			
Thr	Val	Asn	Trp	Lys	Phe	Ser	Glu	Ser	Thr	Thr	Val	Phe	Thr	Gly	Gln	
		35					40					45				
Cys	Phe	Ile	Asp	Arg	Asn	Gly	Lys	Glu	Val	Leu	Lys	Thr	Met	Trp	Leu	
	50					55					60					
Leu	Arg	Ser	Ser	Val	Asn	Asp	Ile	Gly	Asp	Asp	Trp	Lys	Ala	Thr	Arg	
	65				70					75					80	
Val	Gly	Ile	Asn	Ile	Phe	Thr	Arg	Leu	Arg	Thr	Gln	Lys	Glu	Gly	Gly	
			85					90						95		
Ser	Gly	Gly	Ser	Ala	Arg	Lys	Cys	Ser	Leu	Thr	Gly	Lys	Trp	Thr	Asn	
			100					105					110			
Asp	Leu	Gly	Ser	Asn	Met	Thr	Ile	Gly	Ala	Val	Asn	Ser	Arg	Gly	Glu	
		115					120					125				
Phe	Thr	Gly	Thr	Tyr	Ile	Thr	Ala	Val	Thr	Ala	Thr	Ser	Asn	Glu	Ile	
	130					135					140					
Lys	Glu	Ser	Pro	Leu	His	Gly	Thr	Gln	Asn	Thr	Ile	Asn	Lys	Ser	Gly	
	145				150					155					160	
Gly	Ser	Lys	Glu	Ser	Pro	Leu	His	Gly	Thr	Gln	Asn	Thr	Ile	Asn	Lys	
				165					170					175		
Arg	Thr	Gln	Pro	Thr	Phe	Gly	Phe	Thr	Val	Asn	Trp	Lys	Phe	Ser	Glu	
			180					185						190		

Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys  
 195 200 205

Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile  
 210 215 220

Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn Ile Phe Thr Arg  
 225 230 235 240

Leu Arg Thr Gln Lys Glu Gly Gly Ser Gly Gly Ser Ala Arg Lys Cys  
 245 250 255

Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile  
 260 265 270

Gly Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala  
 275 280 285

Val Thr  
 290

<210> 29  
 <211> 873  
 <212> DNA  
 <213> Gallus gallus

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 gtcggcatca acatcttcac tcgcctgccc acacagaagg agggaggctc cggaggctcc 300  
 gccagaaagt gctcgtgac tgggaaatgg accaacgatc tgggctccaa catgaccatc 360  
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 tgcttcatag acaggaatgg gaaggaggtc ctgaagacca tgtggctgct gcggtcaagt 660  
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 ctgcgcacac agaaggaggg aggtccgga ggctccgcca gaaagtgtc gctgactggg 780  
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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
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<210> 31  
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<212> PRT  
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<220>  
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peptide

<400> 31  
Gly Gly Ser Gly Ser Gly Ser Gly Ser Gly Ser Gly  
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<210> 32  
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<212> PRT  
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<220>  
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peptide

<400> 32  
Gly Gly Ser Gly Ser Gly Ser  
1 5

<210> 33  
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peptide

<400> 33  
Gly Ser Gly Ser Gly Ser Gly  
1 5